

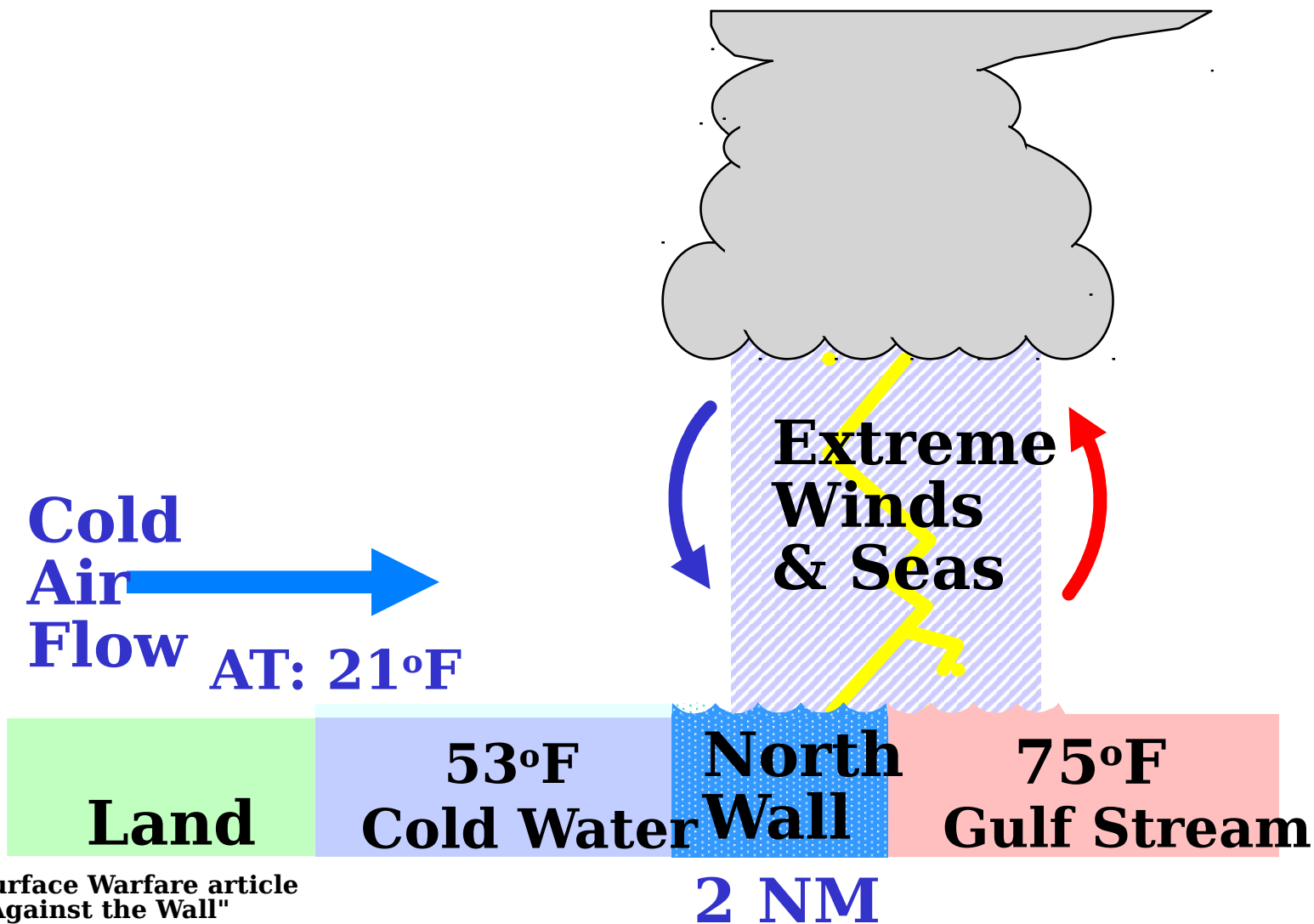
The North Wall....



Picture Source: "The Perfect Storm"



NORTH WALL EFFECT





North Wall Effect

- High seas over the **gulf stream**
 - warm ocean current
 - flows north along Southeast U.S. coast at 1.2 to 2.5 kts
- Typically a cold season event
 - high winds
 - cold air
- Two types
 - Perpendicular flow
 - Opposing flow





Perpendicular Flow

- Cold air flows over warm water
 - minimum 20 degrees F temperature difference required
 - common with “cold-air outbreak”
- Resulting convection brings higher speed air from aloft to surface
- Higher surface winds....higher waves
- Worst place is where gulf stream is closest to land....Cape Hatteras
- Effect of seas felt further seaward





PERPENDICULAR WIND FLOW

Air Temp: 45 Deg
SFC Winds: 30 kts
Geostrophic Wind: 43 kts

Max Winds 41 kts

North Wall

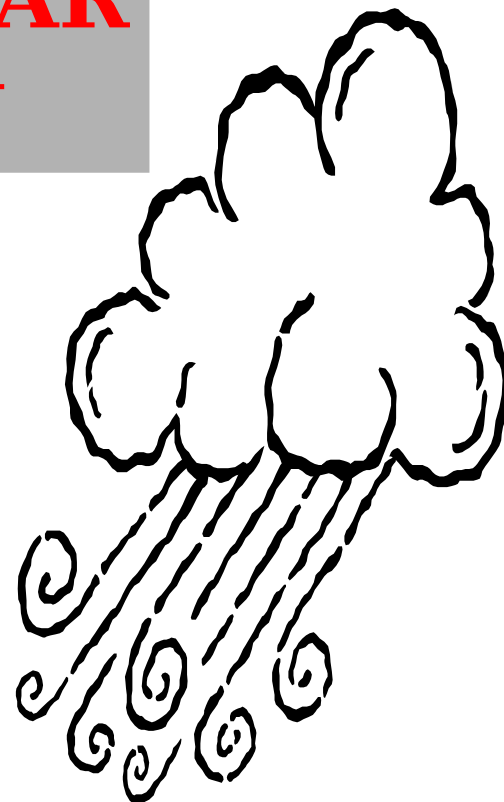
Gulf Stream

South Wall

Ts - 75 Vs - 3

20 ft

15 ft



- Air is less modified and features extreme gustiness

- Effects felt further seaward

- Often occurs with



Opposing Flow

- NE winds flowing over northeastward flowing current...
- generates very high, steep waves...
- over a fairly narrow zone
- temperature contrast not as important
- typically occurs with stalled front off the Mid-Atlantic coast
- common with Hatteras / VACAPES developing storm





OPPOSING WIND FLOW

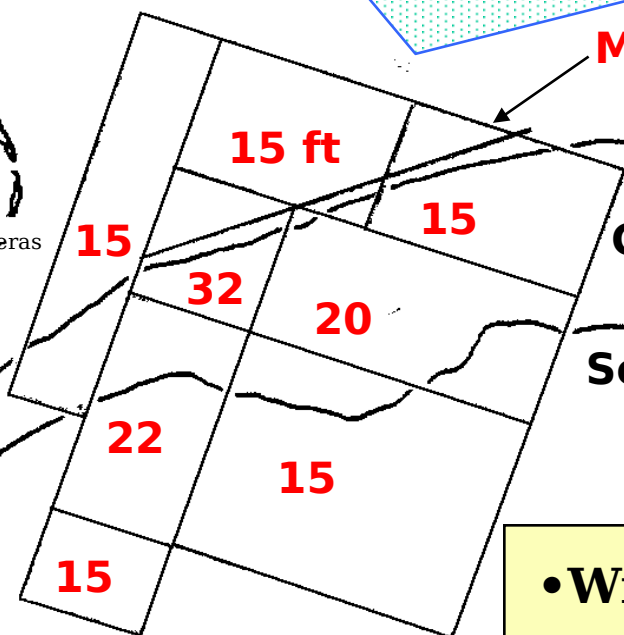
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North Wall

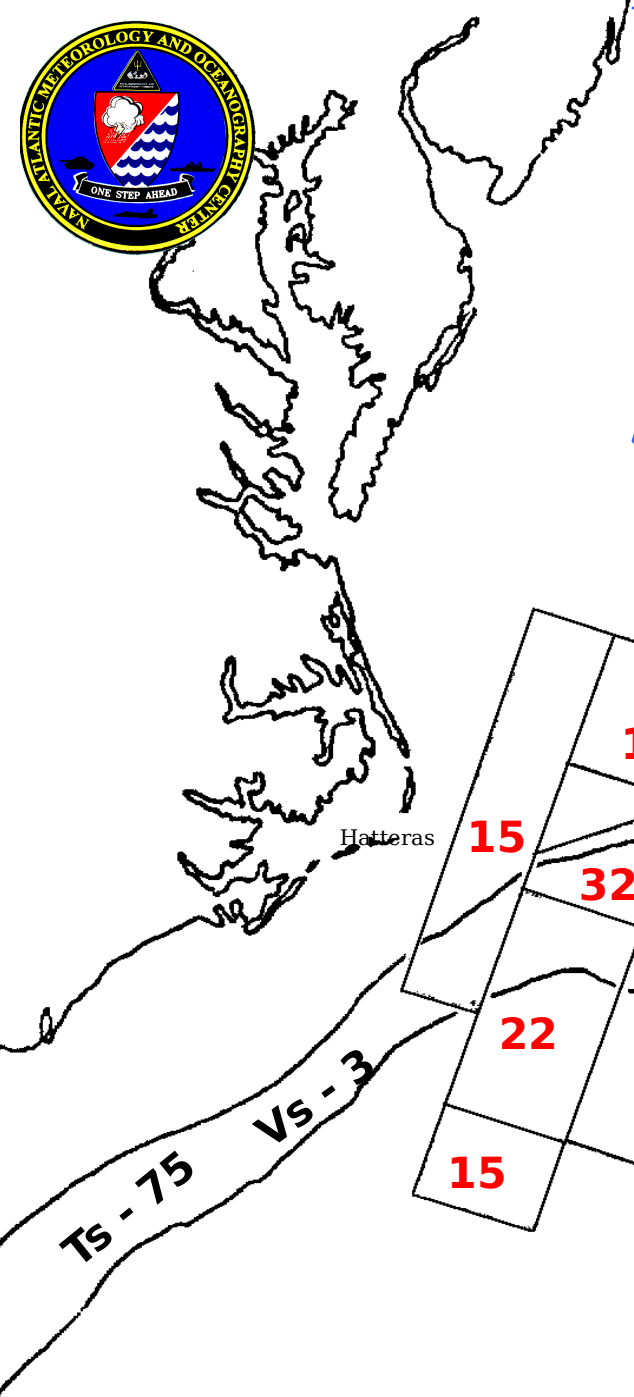
Gulf Stream

South Wall



- Wind fetch opposes Gulf Stream
- Narrow zone established with steeper waves

• Not dependent on season





Warning Message

- Issued by NAVLANTMETOCEN
Optimum Track Ship Routing (OTSR)
- Warning box with highest conditions forecast and effective times
- Also provides gulf stream location by series of lat/long points

